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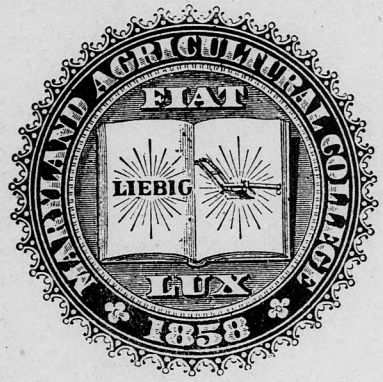

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ADDRESS

Chemical Department, Maryland Agricultural College,

COLLEGE PARK, MD.

ANALYSIS OF

Commercial Feeding Stuffs Sold in Maryland

BY THE CHEMICAL DEPARTMENT OF

THE MARYLAND AGRICULTURAL COLLEGE.

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This bulletin contains the analyses of 85 samples of feed stuffs which have been obtained since November, 1905.

The analyses are not complete, but show the percentage of protein and fat, which is sufficient for ordinary purposes, as the quality of the feed may be readily judged from these constituents, the most important of which is the protein.

Protein is the nitrogenous part of the feed and is absolutely necessary to build muscle, sinews, nerves, hair, feathers, etc., in fact, enters into the composition of all essential parts of the body.

Fat can only serve as a fuel or energy producer, or to build fatty tissue, which is only a reserve fuel supply for the animal, whatever it may be. Protein may also serve as an energy producer and may be used to form fat, but the use for such purposes is not profitable.

It should be remembered that in materials very low in protein, as straw, corn, bran, oat bran, peanut hulls, etc., a smaller percentage of the protein is digestible than is the case with high-grade feeds.

Twenty of the feeds in the following table are composed of whole seeds or coarse crushed grain, mixed together so that they may be identified by inspection. The greater part of them are composed of screenings and offal from grains used in the preparation of human foods. The majority of them are poultry foods, but do not contain protein enough for a complete ration, and should be supplemented with meat meal or other feed rich in protein. Some of the feeds contain flaxseed (which should contain 24 per cent. protein and 35 per cent. fat), but it is not used in sufficient amount to raise the result of analysis materially.

The following is a list of these feeds, with the principal ingredients:

No. 13035—Coarse crushed corn and oats.

No. 13036—Granulated corn and wheat with some millet and flaxseed.

No. 13037—Granulated corn, with Kaffir corn, wheat and millet.

No. 13040—Wheat, Kaffir corn, barley and sunflower seed.

No. 13042—Cracked corn, barley, wheat, oats, Kaffir corn, buckwheat, flaxseed seed, sunflower seed and grit.

No. 13043—Cracked corn, peas, wheat, buckwheat, Kaffir corn, flaxseed and grit.

No. 13044—Fine granulated corn, oat kernels, millet, flaxseed and charcoal.

No. 13051—Granulated corn, wheat, oats ,buckwheat and flaxseed.

No. 13056—Granulated corn, Kaffir corn, and wheat, whole millet and flaxseed.

Nos. 13059, 13060 and 13092—Cracked corn and oats.

No. 13067—Granulated corn and Kaffir corn, wheat, oat kernels and flaxseed.

No. 13068—Cracked corn, wheat, peas, oats, Kaffir corn and flaxseed.

No. 13069—Cracked corn, wheat, Kaffir corn, oats and crushed oyster shell.

No. 13073—Cracked corn, wheat and oats screenings.

No. 13074—Granulated corn, Kaffir corn and oats—millet.

No. 13087—Granulated corn, cracked peas and millet. Each 100-lb. sack contains a 5-lb. sack of meat meal, which, when mixed with the whole, should raise the protein to about 14.75 per cent.

No. 13088—Cracked corn, Kaffir corn, wheat, barley and oats screenings, flaxseed, charcoal and grit.

13089—Granulated corn, Kaffir corn, wheat, millet and flaxseed.

The various "oat feeds" are composed largely ,and sometimes entirely, of oat bran and middlings, the by-product from the preparation of oat meal and "rolled oats" for human food.

Concentrated feeds will vary some in composition, but the quality will be indicated by the percentage of protein and fat. The following abbreviated list contains the principal concentrated foods, as well as some of the more common foods and adulterants, for comparison. The percentage given are the approximate averages to the nearest unit. Any decided shortage below the figures here given denotes poor quality or adulteration.

Feed.	Protein. Per Cent.	Fat. Per Cent.
Cotton Seed Meal	41	8
Linseed, or Flaxseed Meal	35	†2
	33	*7
Gluten Meal	33	2
Gluten Feed	25	3
Germ Oil Meal	23	10
Malt Sprouts	23	2
Dried Brewers' Grains	20	3
Wheat Middlings	16	4
Wheat Bran	15	4
Wheat	12	2
Oats	11½	4
Corn Meal	10	4
Cow Peas	21	1
Alfalfa Hay	14	2
Red Clover Hay	12	3
Timothy Hay	6	2½
Corn Bran	6	2
Oat Straw	4	2
Cotton Seed Hulls	4	2
Peanut Hulls	4	.....
Wheat Straw	3	1
Corn Fodder (Stover)	3½	1

*Old process. †New process.

The law requires that all concentrated feeds be branded with name of manufacturer, name of feed and the guaranteed analyses of protein and fat. Purchasers should insist on the guarantee.

We have reason to believe that ground peanut hulls are being used to some extent to adulterate feeds, probably bran, and purchasers should be on the lookout for this, as the hulls are worthless as a feed.

This department will be glad to receive suggestions and correspond with consumers of feed, and dealers, in regard to suspected adulteration, and will make investigations of the same so far as we possibly can.

PROVIDING PROTEIN FOR POULTRY.

F. H. HALL AND W. P. WHEELER.

NOTE. This is a reprint of the Popular Edition of Bulletin No. 271, of the New York Agricultural Experiment Station, Geneva, New York.

PROTEIN ESSENTIAL FOR GROWTH.

An abundant supply of protein in palatable form is necessary for satisfactory growth of poultry. The development of blood, flesh and feathers is very rapid in young birds; and these parts and organs are rich in nitrogenous matters. These can come only from the food of the young chick or duckling.

Under farm conditions these indefatigable little foragers will supplement their allotted grain ration with grasshoppers, flies, beetles, worms, slugs and other forms of animal life that are rich in protein; but in confinement, especially where the flocks are large, the young birds can not secure a sufficient amount of protein, in the limited range of natural animal food that comes their way, to balance up the carbohydrates of the grains. When shut up, also, the birds lack the vigorous exercise that might enable them to utilize large amounts of foods low in protein so that they could secure the needed quantity of this essential requirement for rapid and profitable growth.

SUPPLEMENTS NECESSARY WITH GRAINS.

The cereal grains, especially corn, are very starchy foods; and no combination of them will give a nutritive ratio narrow enough to develop the young bird rapidly. Some supplement must be used. Seeds of the legumes, like peas, beans or cowpeas, are richer in protein; but unfortunately, these foods are not well liked by poultry and will not be eaten in any considerable quantity.

Those materials that are richest in nitrogen are the concentrated by-products; but these products are not, in a way, natural foods. They are refuse materials from slaughter houses, from creameries or from oil mills; parts of grains from starch factories and glucose works, sprouted grains from distilleries and breweries, or other materials whose natural composition has been changed in some way. It is not safe to depend on the content of protein and fat in estimating the food value of such materials for poultry, as may usually be done in case of

whole grains. Palatability, constipating or laxative effect, excess or deficiency of mineral matter are all factors that must be considered. The adaptability of such feeds can only be determined by actual trial.

STATION TESTS.

The Station has fed several of these by-products to poultry and finds such marked differences in their effect that the results are well worth presentation.

DRIED BLOOD INFERIOR FOR DUCKLINGS.

In the test with ducklings three pens of from 25 to 30 birds were fed for nine weeks, starting when the ducklings were one week old. Three highly nitrogenous rations were fed, the basis of each being corn meal, green alfalfa and a mixture of four parts cream gluten meal, two parts each of pea meal and low grade flour and one part each of corn meal, wheat middlings and blood meal, with five ounces of salt for every 100 pounds of the mixture and with a liberal allowance of sand.

To this basal ration there was added about one-third the amount of the by-products to be tested: For Lot I "animal meal" and "meat meal," for Lot II blood meal and bone meal, and for Lot III "milk albumen" and bone meal.

Lot II made much slower growth than either of the other lots, I and III being about equal. The average gain for the birds in these lots in nine weeks was five and one-seventh pounds, for those of Lot II four and one-quarter pounds; but each lot ate almost exactly the same amount of dry matter for a pound of growth. That is, the rations, for Lot II was of the same productive value as the other rations, when eaten; but it appeared to be unpalatable so that the ducklings would not eat it freely enough to make a rapid growth.

The ration containing the "milk albumen" was the most satisfactory so far as the general appearance of the birds was concerned, as the plumage developed more rapidly and evenly under that ration than under "animal meal" and "meat meal;" but the relatively high cost of the "milk albumen" made the ration less profitable to use.

GLUTEN MEALS UNSATISFACTORY FOR CHICKS.

In another test, 40 to 50 chicks in each of 4 pens were fed for eight weeks. The by-products tested were: For Lot I "animal meal," for II "milk albumen," for Lot III gluten meals, and for Lot IV, gluten meals with ground bone to make up any deficiency in ash. The growth of the chicks was slow. Most of them were Leghorns. Lot I

on "animal meal" and Lot II on "milk albumen" did fairly well, the increase being about equal for the two lots. The chicks of Lot III on gluten meals gained only one-third as much as those in Lots I and II, and those in Lot IV, with ground bone to supply the ash deficiency of the gluten meals, about two-thirds as much. The gluten meals appeared to be unpalatable, cream gluten meal less so than Chicago gluten meal. The use of anise and fenugreek to disguise or flavor the gluten meals resulted in but little better consumption of food. The "milk albumen" here, as with the ducklings, was palatable, being somewhat superior in this respect to the animal meal, and was the more healthful food; but its cost made the ration unprofitable.

GIVE PROVED FOODS ONLY TO YOUNG BIRDS.

It was observed in both of these tests, as in many other tests along different lines, that the unfavorable effect of a ration was most marked during the first few weeks of the bird's life. Differences tended to disappear as the chicks or ducklings became older.

It is essential that young poultry be fed rations made up of foods known to be palatable and healthful. Older birds can utilize to better advantage some more questionable materials.

No.	Name of Manufacturer or Agent.	Name of Feeding Stuff.	Place of Sampling.	Protein.		Fat or Ether Extract.	
				Found.	Guaranteed.	Found.	Guaranteed.
13030	Baugh & Sons Co., Baltimore, Md.	Meat Meal for Poultry	Baltimore	67.16	57.00	13.48	10.00
13086	Charles A. Cyphers, Buffalo, N. Y.	Model Beef Scrap	Hagerstown	66 94	.....	10.35	.....
13090	Geo. L. Harding, Binghamton, N. Y.	High Grade Beef Scrap	Hagerstown	37.82	42.00	19.25	30.00
13028	Armour Fertilizer Works, Baltimore, Md.	Fine Ground Bone for Poultry and Stock Feeding	Baltimore	24.43	.....	.45	.....
13029	" " "	Granulated Bone—Course —for Poultry	Baltimore	24.26	.....	2.65	.....
13021	W. G. Bishop & Co., Baltimore, Md.	Prime Cotton Seed Meal	Sykesville	42.69	41.00	9.23	9.00
13100	F. W. Brode & Co., Memphis, Tenn.	Cotton Seed Meal	Frederick	41.30	38.40	8.75	7.00
13075	Kaiser & Brown, Memphis, Tenn.	Prime Cotton Seed Meal	Westminster	41.09	41.00	8.30	9.00
13065	American Cotton Oil Co., New York, N. Y.	Prime Cotton Seed Meal	Ednor	40.63	41.00	8.65	9.00
13023	North Carolina Cotton Oil Co., Henderson, N. C.	Prmie Cotton Seed Meal	Baltimore	40.47	38.61	8.78	8.00
13076	W. A. Kaiser & Co., Memphis, Tenn.	"Eagle Brand" Cotton Seed Meal	Taneytown	40.42	43.00	9.90	9.00
13024	Anderson Phosphate & Oil Co., Ninety Six, S. C.	Standard Cotton Seed Meal	Baltimore	40.32	*	8.26	.....
13052	The Hunter Bros. Milling Co., St. Louis, Mo.	Prime Cotton Seed Meal	Baltimore	40.12	43.00	8.21	9.00
13045	J. M. Frisch & Co., Baltimore, Md.	Prime Cotton Seed Meal	Baltimore	39.75	40.00	7.61	9.00

13099	Southern Cotton Oil Co., Charlotte, S. C.	Cotton Seed Meal.....	Frederick.....	38.90	39.00	6.52	6.00
13095	Thompson & Co., Allegheny, Pa.	Oil Meal as Stock Feed...	Cumberland.....	35.36	32.00	8.12	5.50
13032	W. G. Bishop & Co., Baltimore, Md	Old Process Linseed Meal	Baltimore.....	34.88	32.00	7.07	5.00
13027	American Linseed Co., New York, N. Y.	Old Process Oil Meal.....	Baltimore.....	34.70	32.00	6.87	5.00
13078	Metzgar Seed and Oil Co., Toledo, Ohio.	Old Process Oil Meal.....	Westminster.....	32.89	30.00	8.96	5.00
13098	Continental Cereal Co., Peoria, Ill.	Continental Gluten Feed..	Bel Air.....	31.41	35.00	15.36	12.50
13017	" " "	Continental Gluten Feed..	Bel Air.....	29.31	35.00	14.23	12.50
13015	Michigan Starch Co., New York, N. Y.	Michigan Gluten Feed....	Baltimore.....	21.06	27.00	4.88	4.00
13054	" " "	Michigan Gluten Feed....	Baltimore.....	18.25	27.00	6.20	4.00
13016	Penn Grains and Feed Co., Philadelphia, Pa.	Brewers Dried Grains....	Brighton.....	23.87	23.30	7.20	4.97
13019	" " "	Brewers Dried Grains....	Brighton.....	23.83	23.30	6.91	4.97
13041	Dairy Feed Co., Cockeysville, Md.	Dried Distillers Grains...	Baltimore.....	17.11	.....	9.94	.....
13079	Royal Milling Co.	Middlings, "Ben Hur"...	Union Bridge.....	18.34	12.00	5.80	5.00
13097	Washburn & Crosby, Indianapolis, Ind.	Adrian	Chase.....	18.78	.....	5.02	.....
13062	Pillsbury Mills, Minneapolis, Minn.	Middlings, "B".....	Baltimore.....	15.71	18.00	5.74	4.00
13071	C. A. Gambrill Manufacturing Co., Baltimore, Md.	Bran	Laurel.....	17.46	.....	5.60	.....
13081	Washburn & Crosby, Indianapolis, Ind.	Bran, Coarse.....	Union Bridge.....	15.53	16.00	5.75	4.00
13063	The N'th Western Consolidated Milling Co.	Bran	Baltimore.....	15.36	.....	5.28	.....
13064	Pillsbury Mills, Minneapolis, Minn.	Bran	Baltimore.....	14.92	16.00	4.92	4.00

* Guaranteed 7% of Ammonia, which is equal to 36.98% Protein.

ANALYSES OF FEEDING STUFFS.

No.	Name of Manufacturer or Agent.	Name of Feeding Stuff.	Place of Sampling.	Protein.		Fat or Ether Extract.	
				Found.	Guaranteed.	Found.	Guaranteed.
13049	The H-O Company, Buffalo, N. Y.	H-O Poultry Feed.....	Baltimore.....	18.20	17 00	5.92	5.50
13039	Cyphers Incubator Co., Buffalo, N. Y.	Laying Food.....	Baltimore	17.50	17.31	3.89	3 80
13055	Purina Mills, St. Louis, Mo.	Purina Alfalfa Meal	Baltimore.....	17.29	.....	2.46	.....
13058	" " " "	Purina Mash to make hens lay.	Baltimore	15.53	.....	4.13	.....
13057	" " " "	Purina Fattening Feed for Poultry.	Baltimore.....	14.74	.....	6.01	.....
13053	Lucern Products Co.	Alfalfa Meal Lucern Poultry Food.	Baltimore.....	14.30	.....	2 22	.....
13088	Geo. L. Harding, Binghamton, N. Y.	Egg Builder Rations	Hagerstown.....	13.90	12 00	4.03	5.00
13034	F. P. Cassel, Lansdale, Pa.	F. P. C. Chick Manna ..	Baltimore.....	13.16	14.01	5.24	4.75
13068	Bolgiano's Seed Store, Baltimore, Md.	Square Deal Pidgeon Food	Baltimore.....	12.72	.....	2 85	.....
13089	Geo. L. Harding, Binghamton, N. Y.	Uncle Sam Baby Chick Food.	Hagerstown.....	12.33	12 00	3.85	5.00
13087	Chas. A. Cyphers, Buffalo, N.Y.	Model Nursery Chick Food	Hagerstown.....	12.02	.....	2.45	.....
13051	The H-O Company, Buffalo, N.Y.	Paragon Scratching Feed for Poultry.	Baltimore	12.02	.....	4 16	.....
13073	" " " "	Paragon Scratching Feed for Poultry.	Hyattsville	11.93	.....	3.72	.....
13074	" " " "	H-O "Tid Bits" for Chicks	Laurel.....	11.94	.....	3.08	.....

13056	Purina Mills, St. Louis, Mo.	Purina Chick Feed.....	Baltimore.....	11.80	10.20	4.26	3.60
13037	Cyphers Incubator Co., Buffalo, N.Y.	Developing Food.....	Baltimore.....	11.70	10.90	3.52	3.00
13038	" " " "	Forcing Food.....	Baltimore.....	11.58	12.77	3.92	3.40
13042	Albert Dickinson Co., Chicago, Ill.	Globe Brand Scratch Food	Baltimore.....	11.58	.....	3.31	.....
13043	" " " "	King Brand Scratch Food	Baltimore.....	11.32	.....	2.51	.....
13044	" " " "	Sun Brand Chick Food...	Baltimore.....	10.71	.....	3.82	.....
13069	Bolgiano's Seed Store, Baltimore Md.	Square Deal Poultry Food	Baltimore.....	10.71	.....	2.89	.....
13040	Cyphers Incubator Co., Buffalo, N. Y.	Scratching Food.	Baltimore.....	10.62	11.05	2.90	3.00
13070	Bolgiano's Seed Store, Baltimore Md.	Square Deal Poultry Mash	Baltimore.....	10.62	.....	3.04	.....
13067	" " " "	Square Deal Chick Food..	Baltimore.....	11.35	.....	3.61	.....
13036	Cyphers Incubator Co., Buffalo, N. Y.	Chick Food.....	Baltimore.....	10.30	10.54	3.50	3.27
13020	Lewis Leonhardt & Co., Knoxville, Tenn.	Saccharine Dairy Feed...	Silver Spring.....	21.06	17.00	6.50	4.00
13077	" " " "	Saccharine Dairy Feed...	Linwood.....	16.06	17.00	5.19	4.00
13047	The H-O Company, Buffalo. N.Y.	Paragon Dairy Feed.....	Baltimore.....	19.35	18.00	4.64	4.50
13066	American Milling Co., Philadelphia, Pa.	Sucrene Dairy Feed.....	Taneytown.....	17.85	16.50	5.50	3.50
13094	Pillsbury Mills, Minneapolis, Minn.	Fancy Mixed Feed.....	Hagerstown.....	15.80	19.00	4.70	4.50
13096	Western Grain Products Co., Milwaukee, Wis.	Hammonds Dairy Feed...	Cockeysville.....	15.80	17.00	5.16	3.50
13061	" " " "	Hammonds Dairy Feed...	Frederick.....	12.90	17.00	4.70	3.50
13022	American Cereal Co., Chicago, Ill.	Quaker Dairy Feed.....	Sykesville.....	14.08	12.00	4.17	3.00

No.	Name of Manufacturer or Agent.	Name of Feeding Stuff.	Place of Sampling.	Protein.		Fat or Ether Extract.	
				Found.	Guaranteed.	Found.	Guaranteed.
13013	E. P. Mueller, Milwaukee, Wis.	Mueller's Molasses Grains	Silver Spring	13.51	.....	2.40	.....
13048	The H-O Company, Buffalo, N. Y.	Paragon Horse Feed	Baltimore	13.47	12.00	4.90	4.50
13026	American Cereal Co., Chicago, Ill.	Schumacher's Stock Feed	Frederick	11.58	12.00	5.05	5.00
13080	Suffern Hunt & Co., Decatur, Ill.	Hominy Feed	Union Bridge	11.41	11.02	8.56	7.70
13084	Hunter Bros. Milling Co., St. Louis, Mo.	Hominy Feed	Silver Spring	11.18	11.00	8.17	7.70
13035	Cover Supply Co., Baltimore, Md.	C. S. C. Feed	Baltimore	10.71	.....	4.90	.....
13031	W. G. Bishop & Co., Baltimore, Md.	King Corn and Oat Feed.	Baltimore	10.66	8.00	4.33	4.00
13059	Rich'd C. Wells & Co., Baltimore, Md.	"CC" Feed	Baltimore	10.44	.....	4.90	.....
13060	" " "	"OO" Feed	Baltimore	10.35	.....	4.72	.....
13033	Boone Milling Co., New York, N. Y.	Honest Stock Feed, Corn and Oats.	Baltimore	10.01	10.03	3.42	4.00
13092	Imperial Grain and Milling Co., Toledo, Ohio.	No. 1 Chop	Cumberland	9.56	.....	4.19	.....
13091	" " "	Corn, Oats and Barley Chop.	Cumberland	9.13	.....	3.92	.....
13085	American Cereal Co., Chicago, Ill.	Victor Corn and Oat Feed	Cumberland	8.90	7.50	4.91	3.00
13083	Elsworth & Co., Buffalo, N. Y.	DE-FI Corn and Oat Feed	Silver Spring	8.63	8.00	3.10	3.00

13093	Imperial Grain and Milling Co., Toledo, Ohio.	No. 2 Chop	Cumberland	8.51	.....	3.26	.....
13082	Bay City, Mich., Sugar Co., Bay City, Mich.	Dried Sugar Beet Pulp for Stock Food.	Gaithersburg	8.51	.....	.87	.....
13046	The Great Western Cereal Co., Chicago, Ill.	Boss Corn and Oat Feed.	Baltimore	8.25	9.00	4.56	4.00
13050	HOCO Mills, Buffalo, N. Y.	Jim Dandy Oat Feed	Baltimore	8.20	7.50	3.62	2.75
13072	The Great Western Cereal Co., Chicago, Ill.	Royal Oat Feed	Linwood	7.95	7.80	2.92	2.80

FEED STUFF LAW OF MARYLAND. (Approved, April 5, 1900.)

Section 1. Be it enacted by the General Assembly of Maryland, That the following new Sections be added to Article 48 of the Code of Public General Laws, title "Inspections," under the new sub-title, "Feed Stuffs," to follow Section 83, and to be known as Sections 84, 85, 86, 87, 88, 89, 90, 91 and 92, and to read as follows:

84. Every manufacturer, company or person who shall sell, offer or expose for sale or for distribution in this State any concentrated commercial feeding stuff as defined in the following section of this sub-title, used for feeding farm live stock and poultry, shall affix to every package of such feeding stuff, in a conspicuous place, on the outside thereof, a plainly printed statement, clearly and truly certifying the number of net pounds in the package sold or offered for sale, the name or trade-mark under which the article is sold, the name of the manufacturer or shipper, the place of manufacture, the place of business, the source of the food principles, and a chemical analysis stating the percentage of crude protein, allowing one per cent. of nitrogen to equal six and one-fourth of protein, and of crude fat it contains, both constituents to be determined by the method adopted, at the time, by the Association of Official Agricultural Chemists.

85. The term concentrated commercial feeding stuff, as here used, shall not include hays and straws, the whole seeds nor the unmixed meals made directly from the entire grains of wheat, rye, barley, oats, Indian corn, buckwheat and broom corn. Neither shall it include wheat, rye and buckwheat brans or middlings, not mixed with other substance, but sold separately, as distinct articles of commerce, nor pure grain ground together. The agent of the State hereinafter authorized to make those inspections, is fully empowered to take samples of these excepted articles when found, and, if upon analysis, they prove to be adulterated, the vender shall be in all respects subject to the penalties hereinafter set forth for the adulteration of concentrated commercial feeding stuff.

86. The term concentrated commercial feeding stuff, as here used, shall include linseed meals, cotton-seed meals, cotton-seed hulls, pea meals, cocoanut meals, gluten feeds, maize feeds, starch feeds, sugar feeds, dried brewer's grains, malt sprouts, hominy feeds, cereline feeds, rice meals, oat feeds, corn and oat chops, ground beef, fish or animal meals, mixed feeds, all patented or trade-marked foods and all other materials of similar nature not included within the preceding Section of this sub-title.

87. Before any manufacturer, company or person shall sell, offer or expose for sale in this State any concentrated commercial feeding stuff, as defined in the preceding . tion of this sub-title, he or they shall for each and every feeding stuff bearing a distinguishing name or trade-mark, file with the State Chemist of the Maryland Agricultural College, a certified copy of the statement named in Section 84 of this sub-title; said certified copy to be accompanied, when the State Chemist shall so request, by a sealed package containing at least one pound of the feeding stuff to be sold or offered for sale, and the company or person furnishing said sample shall thereupon make affidavit that said samples correspond within reason-

able limits to the feeding stuff which it represents in the percentage of protein and fat which it contains.

88. Before any concentrated commercial feeding stuff, as defined in Section eighty-six of this Act is sold, offered or exposed for sale in this State, the manufacturer, importer, agent or seller thereof shall pay to the Treasurer of the Maryland Agricultural College an inspection fee of twenty dollars for each brand or kind of concentrated commercial feeding stuff contemplated to be sold, and shall receive therefor from said treasurer a license to sell such brand of concentrated commercial feeding stuff until the first day of July next following; provided that when any manufacturer, importer or dealer shall have paid the inspection fee as herein provided, it shall not be necessary for any other person, as his agent or representative, to pay said fee.

89. Any manufacturer, importer or person who shall sell, offer or expose for sale or for distribution in this State any concentrated commercial feeding stuff, as defined in Section 86 of this Act without complying with the requirements of the preceding sections of this sub-title, or any feeding stuff which contains substantially a smaller percentage of constituents, than are certified to be contained shall, on conviction in a court of competent jurisdiction, be fined not more than one hundred dollars for the first offense, and not more than two hundred dollars for each subsequent offense.

90. The State Chemist of the Maryland Agricultural College shall annually analyze, or cause to be analyzed, at least one sample (to be taken in the manner hereinafter prescribed) of every concentrated feeding stuff sold or offered for sale under the provisions of this sub-title; said State Chemist is hereby authorized and directed in person, or by deputy, to take a sample, not exceeding two pounds in weight, for said analysis, from any lot or package of concentrated commercial feeding stuff, which may be in the possession of any manufacturer, importer, agent or dealer, or in *transitu* in this State. The result of the analysis of the sample or samples so procured, together with such additional information as circumstances advise, shall be published in reports or bulletins from time to time.

91. Any person who shall obstruct the State Chemist or his deputy when in the discharge of his duty, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punished by a fine of not less than one hundred ($100) dollars, or more than five hundred ($500) dollars, or by imprisonment for not less than one month or more than six months, or by both such fine and imprisonment.

92. Whenever the State Chemist becomes cognizant of the violation of any of the provisions of this sub-title he shall report such violation to the State's Attorney having jurisdiction, who shall prosecute the party or parties thus reported, but it shall be the duty of said State Chemist to notify the manufacturer, importer or dealer in writing, before reporting same to State's Attorney, and give him not less than thirty days thereafter in which to comply with the requirements of this sub-title, but there shall be no prosecution in relation to the quality of any concentrated commercial feeding stuff if the same shall be found substantially equivalent to the certified statement named in Section 87 of this sub-title.

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